



# Geomatics Application in Costing Water Networks

The case of Addis Ababa, Ethiopia

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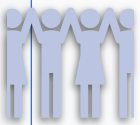
## Water Security & Sustainable Development Hub



Funded by the Global Challenges Research Fund (GCRF) ~**£13M**



From **13-Feb-2019** until **31-Mar-2024**



**157** multidisciplinary researchers (70♀ | 87♂)



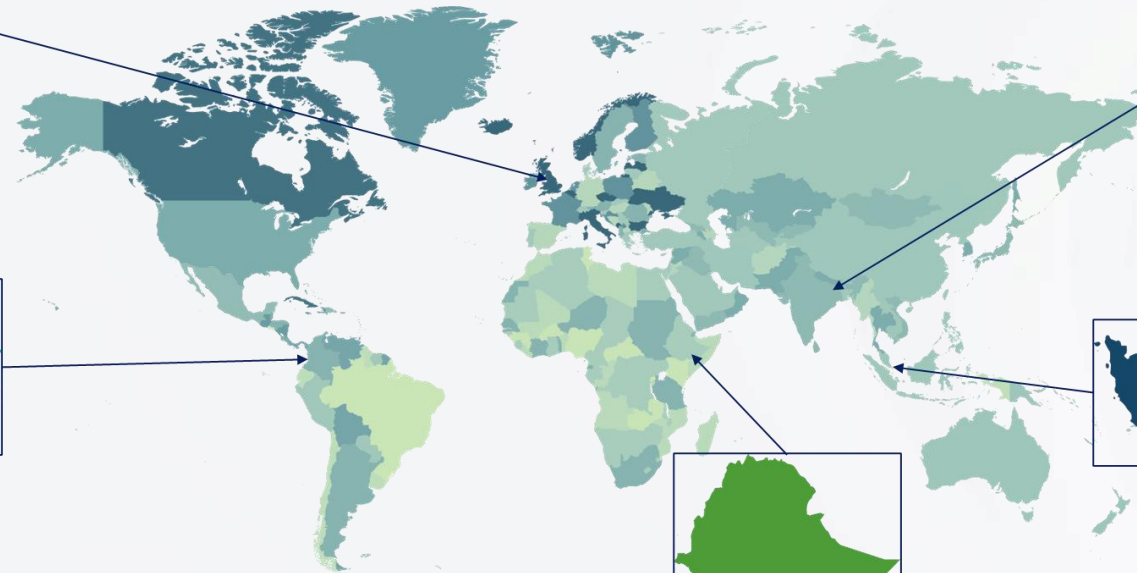
**11** research institutions  
**45** research partners



U.K.



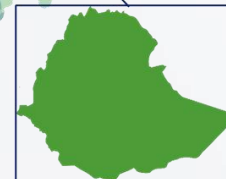
Colombia



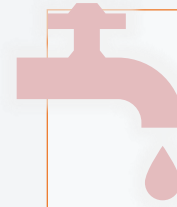
India



Malaysia



## 6 CLEAN WATER AND SANITATION



2.2B people lack safely managed drinking water services today



1.6B people will still lack access by 2030 at the current progress rate



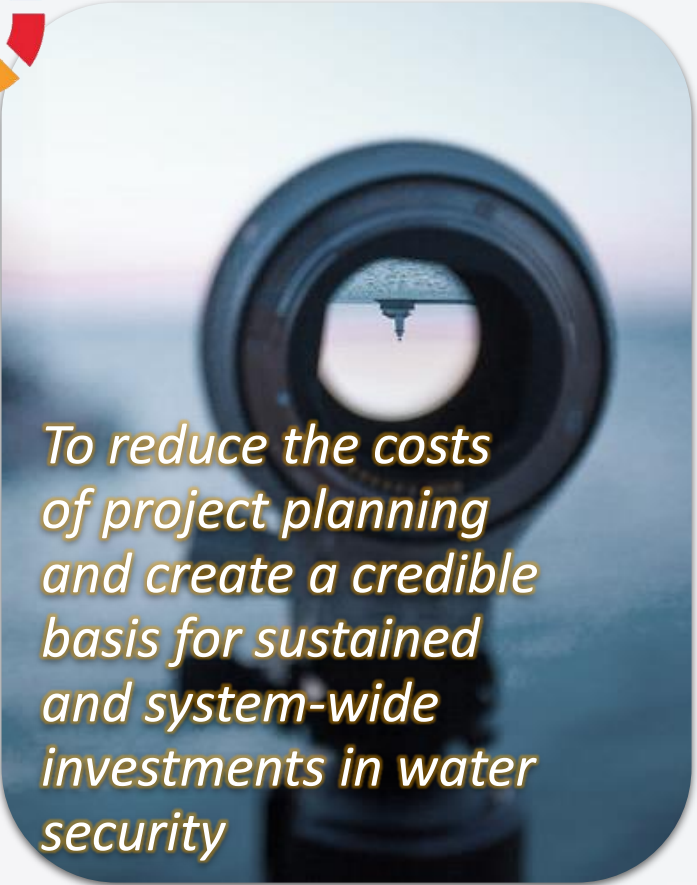
UN-Water identified five main accelerators



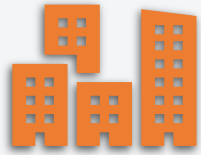
SDG 6 Accelerators



*“Improved targeting, better utilisation of existing resources and mobilisation of additional domestic and international funding will lead to **efficient service delivery and implementation**”*



*To reduce the costs  
of project planning  
and create a credible  
basis for sustained  
and system-wide  
investments in water  
security*



Rapidly growing and urbanised. Envisioned to be Africa's centre.

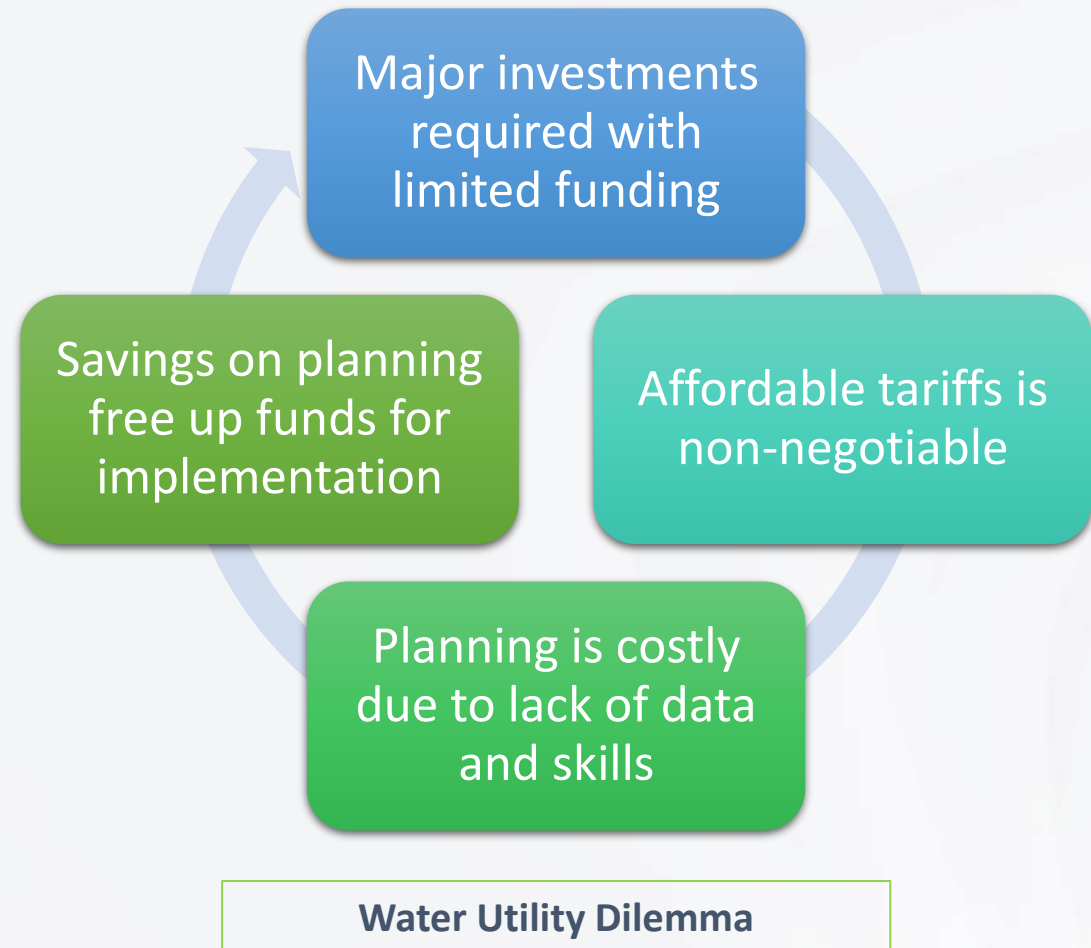
5.3 million current population, expected to exceed 9 million by 2035.



Only 53% of the current 1.1M m<sup>3</sup>/day demand is met (ARUP, 2021).

WDN suffers 41% leakage and capacity to meet future demand.



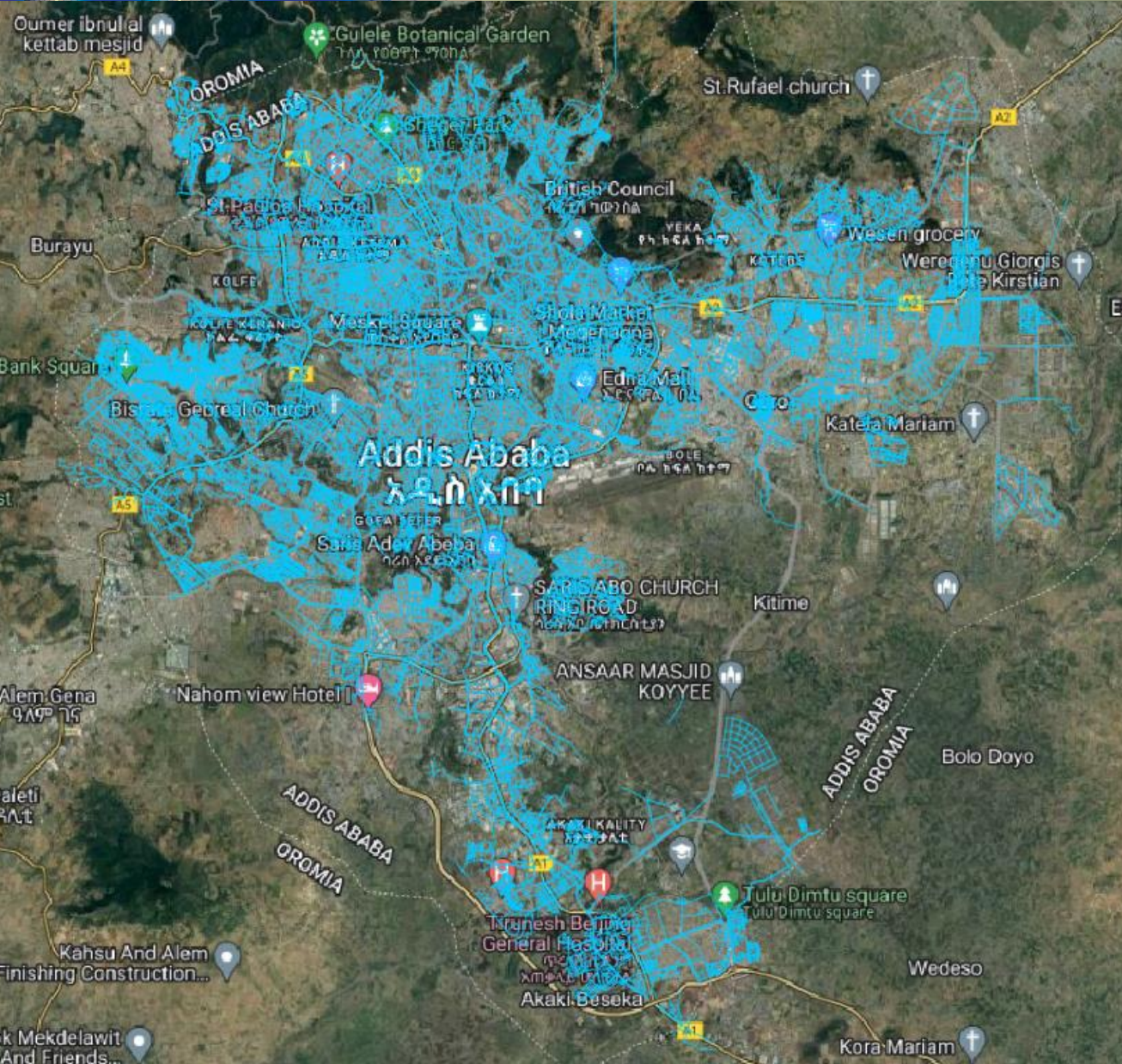


Identify, refine and, where necessary, augment the available geographic datasets of Addis Ababa's WDN

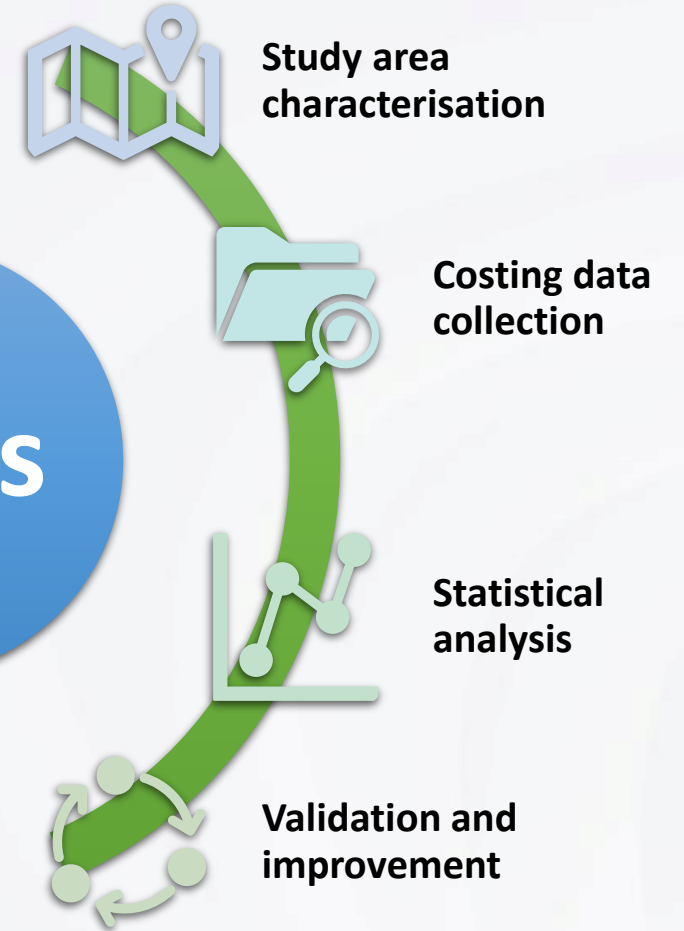
Use advanced GIS techniques to offer costed plans for rehabilitation and expansion of the WDN

Map, analyse and highlight the weak points of the existing WDN via GIS-based database development





## Steps



# Study Area Characterisation



Field visits



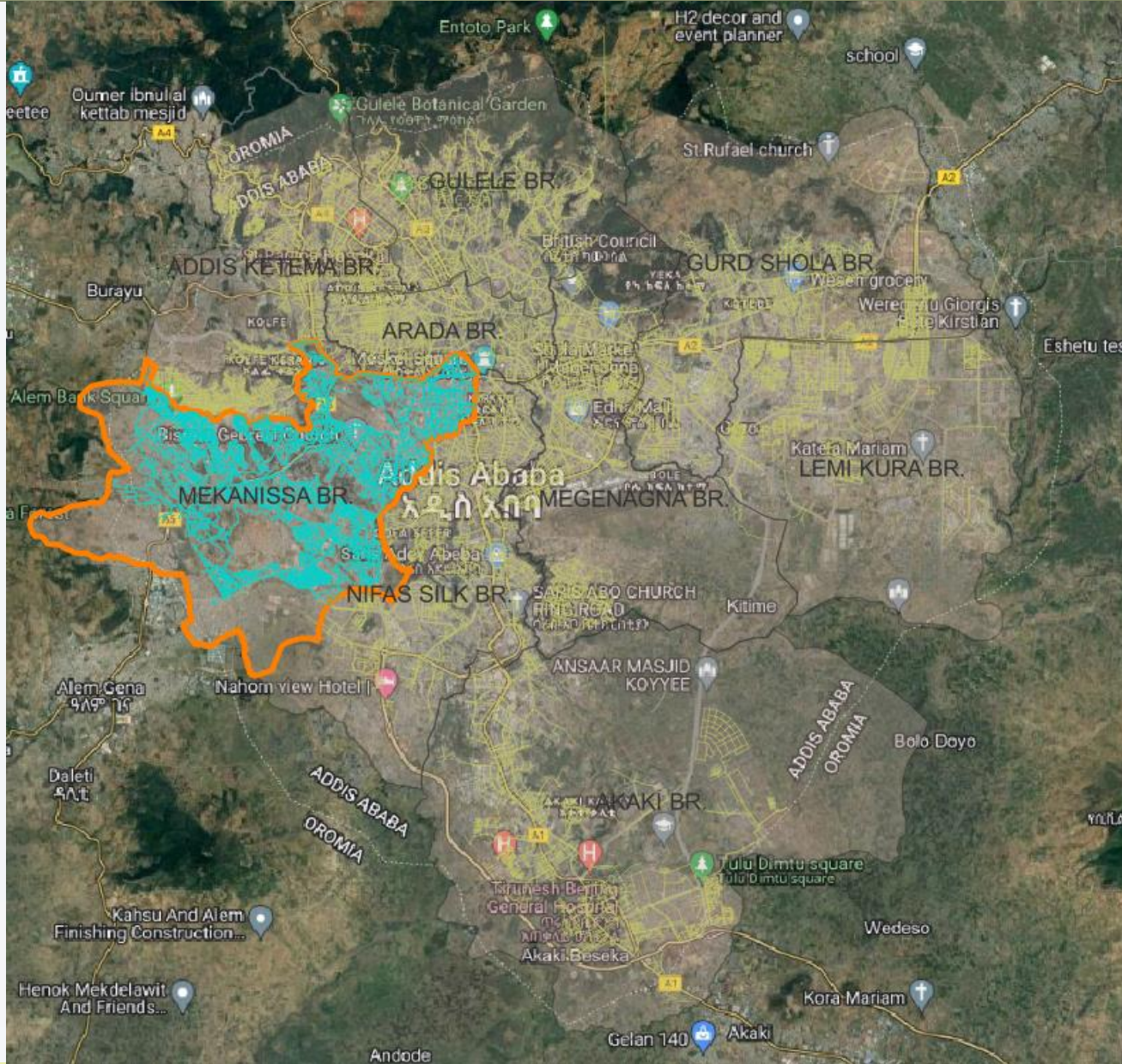
Workshops

Hydraulic Modeling and network managem...	6/23/2022	122 MB
PIPE BOQ WITH LOT	7/1/2022	332 KB
REPORT	6/23/2022	13.3 MB
RESERVOIR AND EM BOQ WITH LOT	6/23/2022	8.84 MB
06 WP2 Final Report Presentation.pdf	6/23/2022	9.77 MB
Reservoir and PS TD.docx	6/23/2022	1.78 MB
Strategic Plan Report Final 06Aug13.p...	5/4/2022	2.59 MB
Order Document.docx	6/23/2022	1.71 MB
EI MAIN REPORT.pdf	6/23/2022	4.76 MB
EI III EM REPORT.pdf	6/23/2022	2.34 MB
EI STRUCTURAL REPORT.pdf	6/23/2022	8.79 MB
Final Report.docx	6/23/2022	87.5 MB

Secondary data

**IWMI**  
International Water Management Institute

Partnership



# Working with Stakeholders



Gambella People National  
Gambella People National  
Gambella People National  
Gambella People National  
Gambella People National  
Regional State

Bill of Quantity  
Bill of Quantity  
Bill of Quantity  
Bill of Quantity  
Bill of Quantity

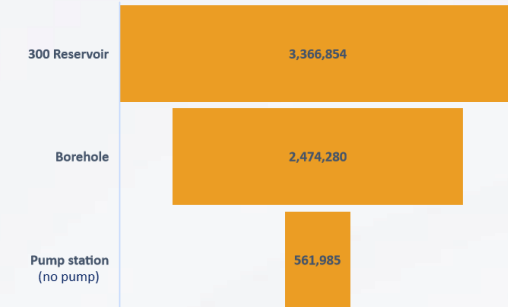
ITANG WATER SUPPLY PROJECT		
SUPPLY AND CONSTRUCTION OF TRANSMISSION MAIN , COLLECTOR PIPES, AUXILIARY BUILDINGS AND RESERVOIR		
SUMMARY OF BILLS		
	DESCRIPTION	AMOUNT (IN BIRR)
BILL A	GENERAL ITEMS	
BILL B	SUPPLY AND CONSTRUCTION OF COLLECTER AND TRANSMISSION	
BILL C	CONSTRUCTION OF RESERVOIR	
BILL D	CONSTRUCTION OF BORE HOLE GENERATOR SHELTER, GUARD HOUSE AND RELATED WORKS	
BILL E	CONSTRUCTION AND SUPPLY OF SUBMERSIBLE PUPMP STATION SITE WORKS	
	ELECTROMECHANICAL WORKS	
	TOTAL	
	15 % VAT	
	GRAND TOTAL	

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SUMMARY SUMMARY CIVIL WORK Detail before Tax Bill A Bill B-1 Bill B-2 Bill B-3 Bill B-4 Bill C-1 ... + : <

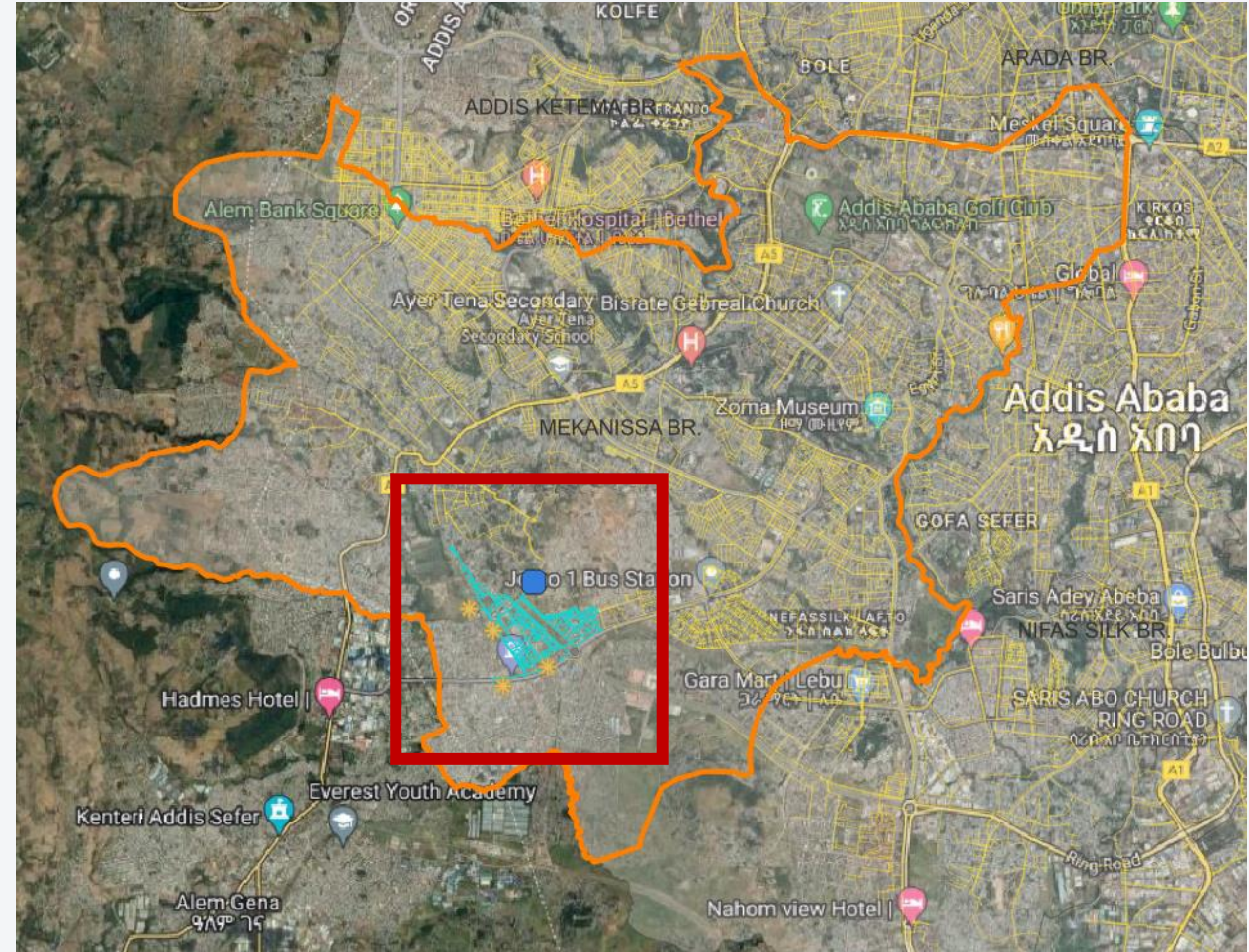
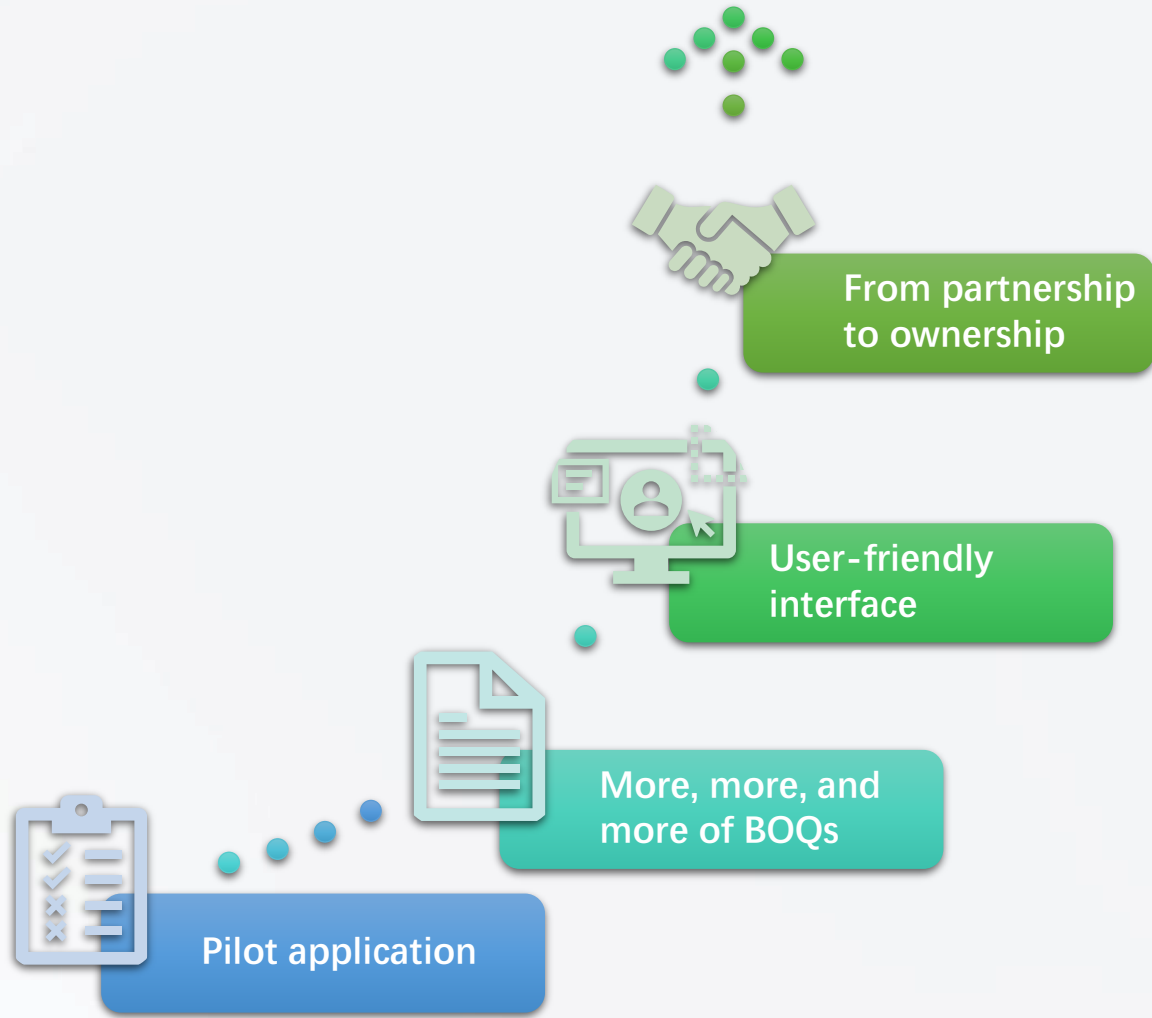


Components Price (2020 Birrs)



HDPE Pipes Unit Price





# Thank You

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